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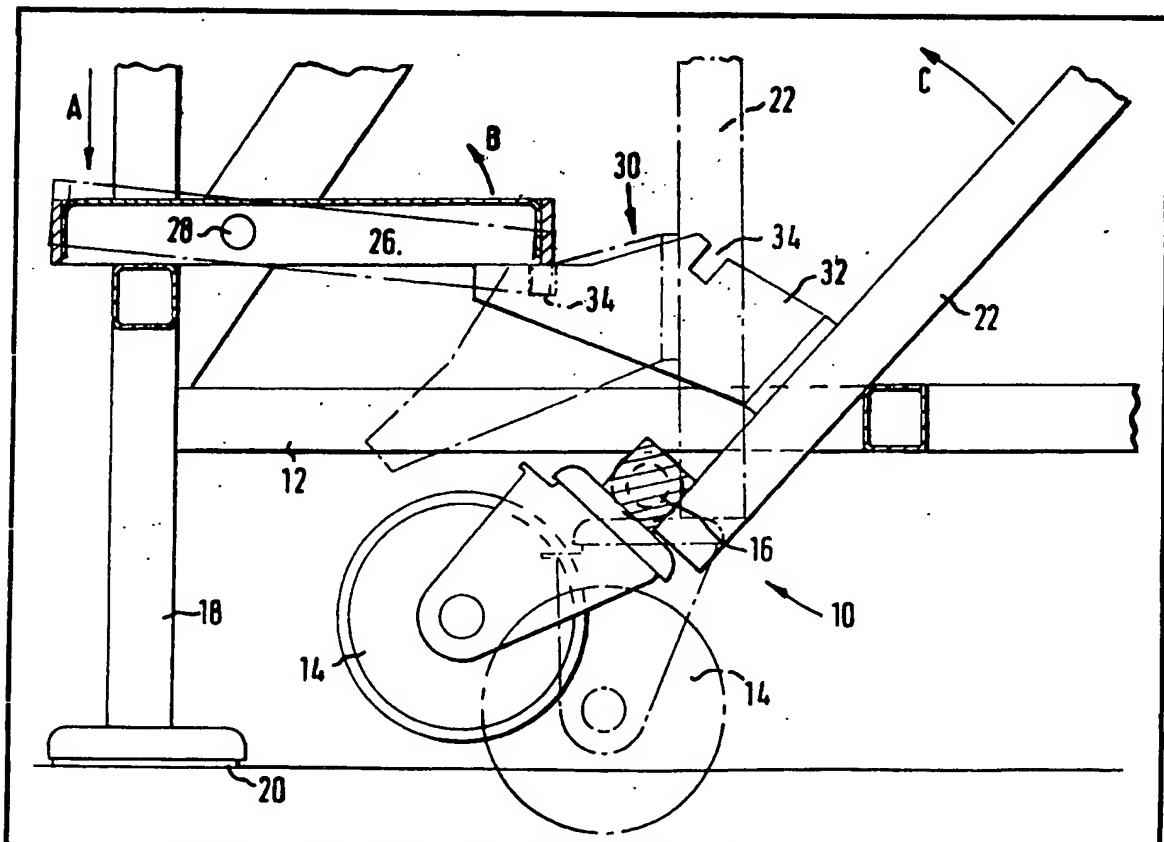
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(54) On-off wheel for step-ladders

(57) The invention provides a wheeled step unit in which at least one of wheels 14 can be raised to allow the leg 18 of the unit to engage the ground to resist transport of the step unit and can be lowered from a retracted position to a ground engaging position to permit unit transport. One of the steps 26 is pivotally mounted and co-operates with a wheel latch mechanism 32, 34 in such a way that the latch mechanism can lock the wheel in its ground engaging position unless downward pressure on the pivoted step (such as applied by a person stepping onto the step) will cause the step to pivot to release the wheel to permit it to return to

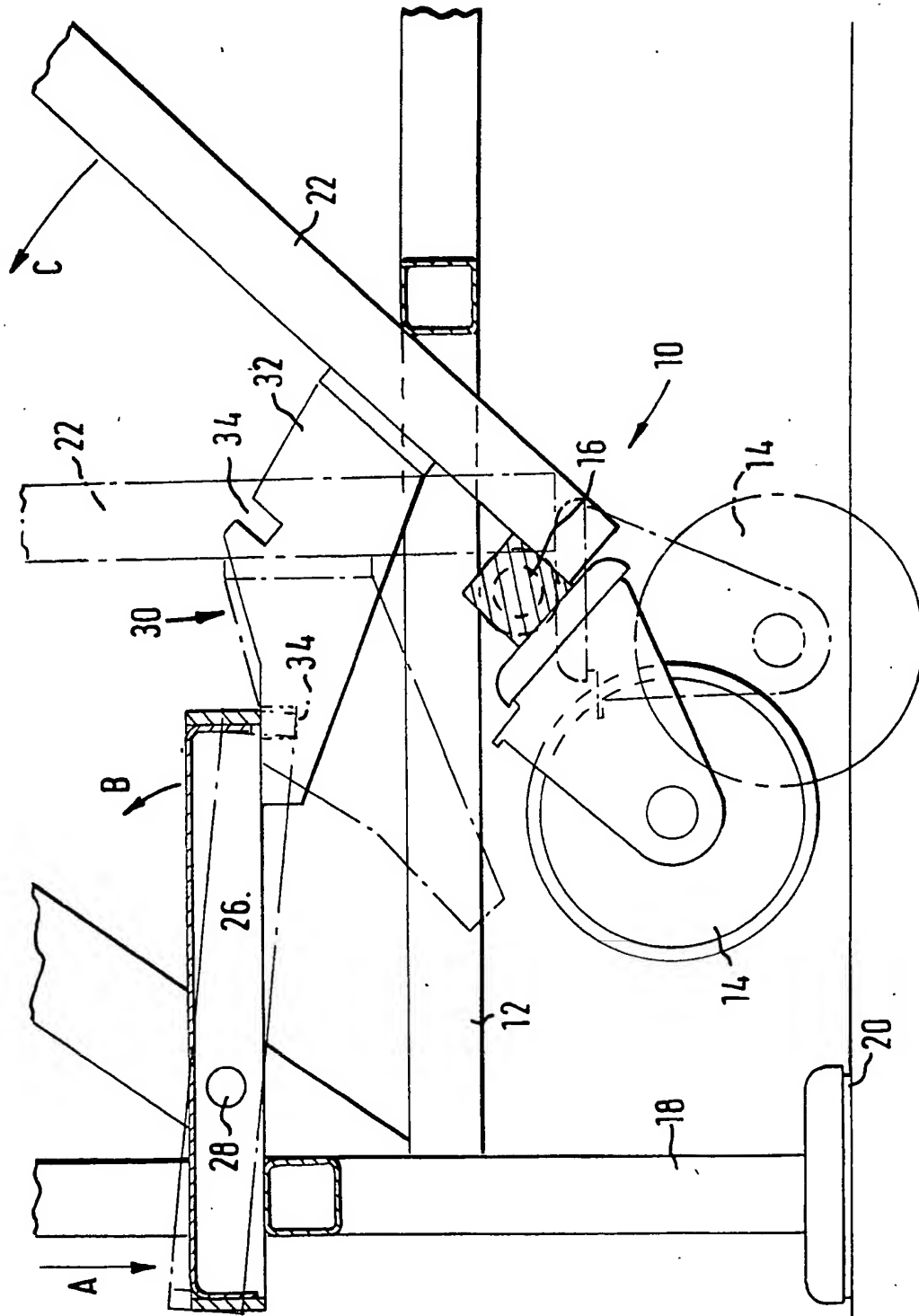
its retracted position.



The drawing originally filed was informal and the print here reproduced is taken from a later filed formal copy.

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SPECIFICATION

Safety steps

- 5 This invention relates to step units of the type mounted on wheels to permit transport thereof, and aims to provide an improved safety wheel lock arrangement for such step units.
- According to a feature of the invention,
- 10 there is provided a step unit mounted on wheels, at least one of the wheels being pivotally mounted on a frame of the unit and movable between a first raised position in which a leg of the unit engages the ground to
- 15 resist transport of the step unit and a second lowered position in which the leg disengages the ground to permit movement of the unit, one of the steps being pivotally mounted on said frame, and a latch mechanism cooperating
- 20 between said one step and said one wheel in such a way that the wheel can be locked in said second position by the latch mechanism unless downward pressure is exerted on said one step causing it to pivot to release the
- 25 latch mechanism thereby permitting said one wheel to return to said first position.
- An embodiment of the invention will now be described by way of example only with reference to the accompanying drawing,
- 30 which is a part sectional view showing a safety wheel lock mechanism of a multiple step unit according to the invention.
- Referring to the drawing, the multiple step unit 10 of which, for clarity reasons, only the
- 35 bottom step is shown, includes a main frame 12 mounted on a pair of spaced wheels 14 (one only shown) located at a front end of unit and a pair of spaced wheels (not shown) located at a rear end of the unit. The front
- 40 pair of wheels 14 are secured to a transverse bar 16 pivotally mounted on the frame 12, whilst the rear wheels are not so pivotally mounted. The frame includes a pair of legs 18 (one only shown) which engage the
- 45 ground when the front wheels are located in their raised position (shown in full lines in the drawings). The base of each leg may be constituted by a resilient pad 20 (such as rubber) providing a high coefficient of friction
- 50 with the ground to restrain transport or movement of the unit.
- To enable the unit to be moved to a different location, the bar 16 is provided with a manually operable arm 22 which when pulled
- 55 in direction C causes the wheels to lower in an anticlockwise direction to engage the ground and the legs to be lifted therefrom. To lock the wheels in their lowered position, the lowest step 26 is pivoted about axis 28 and a
- 60 latch mechanism 30 is provided between the step and the arm 22. In the present embodiment the mechanism includes a cam 32 carried by arm 22 and including a cut-out 34 which receives a rear portion of the lower step
- 65 when the front wheels are in their fully low-

ered position.

- Should a person attempt to mount the steps whilst the front wheels are in contact with the ground, pressure applied in direction A by the
- 70 person's foot (in particular his heel) will cause the lowest step to pivot in direction B thereby releasing the cam 32 and causing the front wheels under the weight of the person to pivot back to their raised position. This brings
- 75 the legs 18 back into contact with the ground to provide the safety function of resisting movement of the unit until the front wheels are again latched in their lowered position.

80 CLAIMS

1. A step unit mounted on wheels, at least one of the wheels being pivotally mounted on a frame of the unit and movable between a first raised position in which a leg of the unit
- 85 engages the ground to resist transport of the step unit and a second lowered position in which the leg disengages the ground to permit movement of the unit, one of the steps being pivotally mounted on said frame, and a
- 90 latch mechanism cooperating between said one step and said one wheel in such a way that the wheel can be locked in said second position by the latch mechanism unless downward pressure is exerted on said one step
- 95 causing it to pivot to release the latch mechanism thereby permitting said one wheel to return to said first position.
2. The step unit of Claim 1, wherein the latch mechanism includes a cam carried by
- 100 one of said one step and said one wheel, and a latch member carried by the other of said one step and said one wheel, the latch bar engaging in a slot in said cam when said one wheel is in its locked condition.
- 105 3. The step unit of Claim 1 or 2, including a manually operable arm for moving said one wheel into its ground-engaging position.
4. The step unit of Claim 1, 2 or 3, wherein said one step is pivoted in such a
- 110 way that a person stepping onto said one step will cause it to pivot sufficiently to release said latch mechanism.
5. The step unit of Claim 4 wherein the pivot axis of said one step is located inwardly
- 115 of a front edge of the step by a sufficient amount to ensure that the weight of a person stepping on said one step will be applied between said pivot axis and the front edge of said step.
- 120 6. The step unit of Claim 2 or Claim 3, 4 or 5 as appendant to Claim 2, wherein the cam is movable with said one wheel and the latch member is carried by said one step.
7. The step unit of any one of the preceding claims, wherein said one step is the lowermost step.